AMERICAN BEE JOURNAL

43d Year. CHICAGO, ILL., APRIL 9, 1903. No. 15.

Some Officers and Directors of the Ontario Bee-Keepers' Association.

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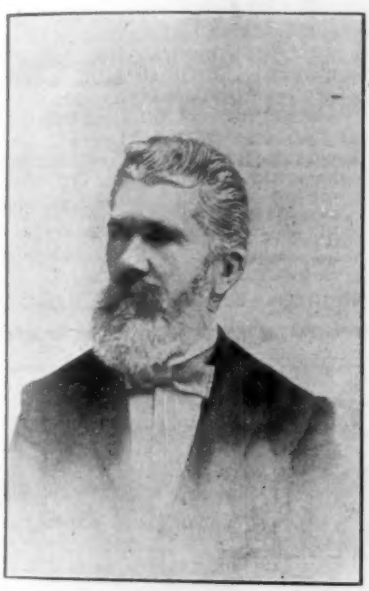

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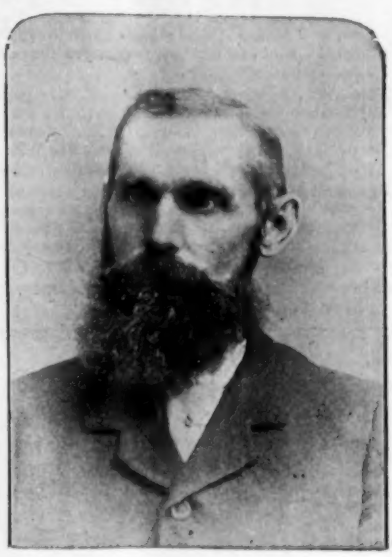

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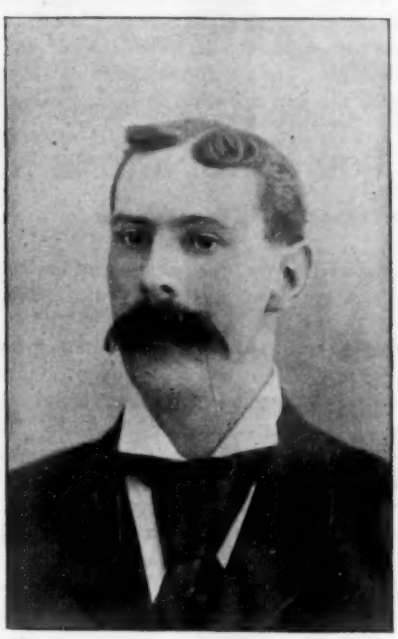

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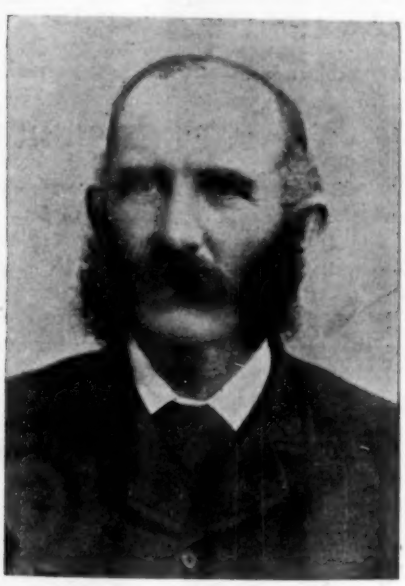

Inspector WM. MCEVOY.

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IMPORTANT NOTICES.

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AMERICAN BEE JOURNAL

THE OLDEST BEE-PAPER IN AMERICA

43d YEAR. CHICAGO, ILL., APRIL 9, 1903. No. 15.

Editorial Comments.

Spraying Fruit-Trees in Bloom.—Geo. W. Stoneman, of Door Co., Wis., wrote us as follows March 28:

MR. EDITOR:—I now come to you in trouble, asking for help, if such is possible. I am living in a fruit-growing district, and must say that last season my apiary was badly damaged, caused from fruit-growers spraying while trees were in bloom.

I do not think our bee-papers are half as sincere on this matter of spraying as they should be; it is very seldom we see anything in them in regard to it. If we bee-keepers try to tell the fruit-growers that they are killing off the bees that fertilize and carry the pollen from blossom to blossom, they will simply say, "O pshaw! I have been told by good authority that the wind does the fertilizing."

So what can we do to stop this spraying while the trees are in bloom? Is there not some printed matter that could be distributed among them to teach them otherwise? Even our nurserymen recommend spraying while in bloom. Now, what do you think we had best do? They will have to be taught otherwise, or we will have to go out of the bee-business. GEO. W. STONEMAN.

This is no new thing. Every spring the Bee Journal has for years had quite a good deal to say on this subject. How any regular reader can charge the bee-papers with being insincere in this matter is more than we can understand.

Several States have laws enacted against spraying while in bloom, notably New York. We believe that no intelligent fruit-grower nowadays advises spraying while in bloom. The time to spray with poisonous mixtures, in order to get best results, is just before and just after the blossoming period.

The National Bee-Keepers' Association has issued a pamphlet or two on this subject, we believe, which will be mailed free on request by addressing the General Manager, N. E. France, Platteville, Wis.

Every bee-keeper should be a member of the National, and then when anything of this kind comes up, he would feel at perfect liberty to appeal to the General Manager for any aid that the National Association could give. The annual dues are only one dollar, and can be sent to this office if more convenient, as we are the Secretary for this year, and one of our duties is to receive dues of members. The General Manager is the Treasurer of the Association, and he also receives dues.

We hope that every reader of this journal will at once become a member of the National, if not already on its membership roll.

Sampling the Incoming Nectar can be done in the following way, according to A. C. Miller in the American Bee-Keeper:

"With the thumb and forefinger grasp an incoming worker by the wings; with the second finger of the same hand, push against her abdomen near the end, but just above the sting, and at the same time place a finger of the other hand against the worker's mouth. The nectar will flow out upon it and taste will readily determine the source from whence it came. If the novice is afraid of pushing on the sting, let him 'set' the worker down on the hive-cover."

Starters Used in Forced Swarms are pronounced "pernicious in the extreme" by W. K. Morrison in Gleanings in Bee-Culture, because of the amount of drone-comb that will be built. He not only thinks full sheets of foundation better, but prefers full combs to either, saying, "If combs are not available, use full sheets of foundation." If with fully drawn combs there is any trouble about going up into the sections, he advises shallower frames.

Taking Brood from One Colony to Help Another.—One of the things as to which a caution needs to be given each year to the inexperienced is with regard to taking one or more frames of brood from one colony to give to another. Here is a colony that is really not a colony, but a nucleus, and a weak nucleus at that. The beginner is likely to say:

"That little thing doesn't amount to anything as it is, but if I take a frame of brood—perhaps better two or three frames of brood—from one of my strongest colonies and give to this weakling, I will then have two colonies instead of one."

Certainly it looks reasonable to believe that two colonies are better than one; but things are not always what they seem. That weakling, even after you have given it two or three frames of brood (and if you give it as much as three frames the likelihood is that a good share of the brood will be chilled), is still not in condition to make good growth, while the colony from which the brood was taken has had a setback from which it will not readily recover.

There would be a good deal more wisdom in uniting the weakling with a strong colony. If that is not thought advisable, then let the weakling alone. After a colony is strong enough to fill six or eight Langstroth frames with brood, it is time enough to think of drawing a frame of brood from it, and even then it may be the better way to leave it intact and give it a second story. It is the strong colonies that make the rapid increase in building up, and 12 frames of brood will be increased to 16 a good deal sooner in two than in three hives.

Then when it is thought best to draw from the very strongest, let it be to help, not the weaklings, but those that are next to the strongest, always helping the *strongest* of those that are weak enough to need help.

Cuban Honey Competition.—Arthur C. Miller, in the Rocky Mountain Bee Journal, expresses the belief that there is little to fear from the importation of Cuban honey, and adds:

Furthermore, it is not the competition of aliens, but of Americans who are sojourning in Cuba—brothers with whom we have worked side by side. Shall we slam the door in *their* faces? Shall we remove about all that makes their life in those surroundings bearable? It is not the Cuban's honey, but the American's honey, that you are crying against, and it is just as reasonable for those States producing little honey, and which sells at high prices, to ask to have Colorado, or Texas, or California, honey kept out of their borders, as for all of us to ask that our brother's honey be kept out of the American market (unless it pay a high tax) because it was produced in Cuba.

To this the Editor replies:

When Americans make use of the resources of an alien soil to compete in the markets of their countrymen, to all intents and purposes they become aliens, and they should be regarded as such.

Some others might say that not only should we give the cup of cold water to those of another State, or our citizens in another land, but to our brothers born on foreign soil as well.

Formalin for Foul Brood.—C. H. W. Weber writes thus in Gleanings in Bee-Culture:

MR. ROOT:—Fulfilling my promise made you some time ago, to inform you of any future developments regarding the cure of foul brood by means of formalin gas, I now hand you the final report of Prof. Guyer, of the University of Cincinnati. The combs mentioned in his report were sent to me to experiment with, by friend bee-keepers. After fumigating them I sent them to the Professor, with the request that he endeavor to find signs of life; but, as he says, he could not. Following is his report:

"Seventy-five tests for foul brood in bee-comb. Tests were as follows: Forty tests on comb which had been subjected to formaldehyde-culture, medium-agar at 37°C; 10 tests on comb containing honey treated as above; 15 tests on comb as above culture, medium boriellon at 37°C; 10 tests on comb (foul brood) not treated with

formaldehyde. Bacillus alvei (germ of foul brood) was found in the comb *not subjected* to formaldehyde; none was found in the combs which *had been treated* with formaldehyde."

This establishes beyond a doubt that formalin gas is a sure cure for foul brood; and I hope that bee-keepers who are unfortunate enough to have colonies afflicted with this disease will give the new cure a trial.

To this Editor Root replies as follows:

I do not feel so certain myself that formalin gas is an absolute sure cure; but the experiments thus far conducted by Mr. Weber give us great reason for hoping that we have something here of more than ordinary value. *If* we can treat diseased combs by so simple a plan as this, we can wipe foul brood out of a yard with very little expense or trouble.

For years it has been claimed in European bee-journals that this or that drug could be successfully used in treating foul brood, and a very few in this country have been of the same belief. For some reason cases of successful treatment in this country have not been reported with the same frequency as in Europe. Some have claimed that a reason for this lies in the fact that in Europe the disease has to some extent run its course, while in the fresher fields of this country it appears with emphasized virulence.

Editor Root has uniformly insisted heretofore that no drugging could be relied on. Is our esteemed cotemporary not going a little too far to the other extreme when he says, "*If* we can treat diseased combs by so simple a plan as this, we can wipe foul brood out of a yard with very little expense or trouble?" The use of formalin, *if* it is as successful as claimed, will enable us to save our combs and honey; will it do anything more? It will not save the brood. Will it do anything more than to put the trouble of disinfecting the combs in place of the trouble of burning them? Even that, however, will be an important gain.

Winter Losses in the West seem to have been severe. The Rocky Mountain Bee Journal says:

Our reports from the Western slope indicate that the loss will be large, due to the severe cold weather and depleted vitality of the bees. Denver bee-keepers estimate that the average loss in their locality will amount to 50 percent. In northern Colorado the loss is above normal, but not so severe. We have no reports from the Arkansas valley.

It is too early yet to make a reliable estimate of winter losses. There are colonies that now give promise of survival that will not reach the first of May, unless the spring is extremely favorable.

Convention Proceedings.

Chicago-Northwestern Convention.

Report of the Chicago-Northwestern Bee-Keepers' Convention, held in Chicago, Dec. 3 and 4, 1902.

BY OUR OWN SHORTHAND REPORTER.

(Continued from page 214.)

PICKLED BROOD.

"Is pickled brood ever ropy?"

Dr. Miller—No.

Mr. France—I agree with Dr. Miller on that. I never knew pickled brood to be ropy, neither do I believe that pickled brood will ever develop into anything else.

Dr. Miller—It will string a little bit, won't it?

Mr. France—No, it never gets ropy.

Dr. Miller—Won't it draw out a little bit?

Mr. France—There may be a stage at which it may be drawn out a little—elastic; but it is only a matter of a couple of days.

Pres. York—Is it contagious?

Mr. France—No, sir.

EXTRACTING-SUPERS.

Mr. Clute—How many prefer the large extracting super? How many prefer 16 and 20 frame extracting supers instead of 8 and 10?

Mr. France—I think that hinges largely on the locality.

Dr. Miller—Wouldn't it also depend largely on his apiary? If he had only two colonies he wouldn't want a 16-frame extractor—I beg pardon—super.

Mr. Niver—How do you use 16 frames in an extractor?

Mr. Clute—My 16-frames are expanded by a piece on top that allows the 16 frames to go crosswise of the whole.

Mr. France—I see that Mr. Niver is not understanding Mr. Clute in regard to that. As he came back from Cuba he explained this hive to me. The hive-body has a little projection so that the other set of frames, the extracting frames, go crosswise, and the length is sufficient. When you put the full length in there you have about 18—some of mine I have 20. The idea came from Mr. Coggshall, who uses them very largely. You are getting extracting combs, two sets in a one-story hive. They are in the next tier to the brood. Now, during extracting I like that style of hive. We can take off honey faster in that than in any other hive I have ever seen.

Mr. Clute—The plan didn't come from Coggshall. It is the same as the 8 and 10 frame hives. I have a cut of the hive here, which I will be glad to explain.

LONG-TONGUED BEES.

"Has this season's test proved any superiority in the long-tongued bees?"

Pres. York—I think the man who has the long-tongued bees is not here, as I hear no answer to the question.

LAYER OF AIR OVER SECTIONS.

"Is a layer of air over sections usually filled with bees? and will more honey be stored on that account?"

Pres. York—It seems to me that Dr. Miller was the man who talked about "a layer of air."

Dr. Miller—I think it is usually filled with bees. I don't know whether more honey will be stored. I know if there isn't air there, there will be bee-glue there. In other words, with "a layer of air," as he calls it, when that layer of air is there the bees will come in there, but they will not put bee-glue on a surface as they will in a crack or an angle. Wherever a bee can pass through itself, it thinks—at least I understand it thinks so—that there should not be a crack there big enough for anything else to go through, and they will plug that full of bee-glue; but having the space there for them to get through, they may furnish a little bee-gule, but it won't be anything like the quantity they will put there; so I will say the advantage of the bee-space is not that you will get more honey, but you will get less bee-glue there with that space than without it.

Mr. Baldridge—How much space would you use?

Dr. Miller—About a quarter of an inch.

Mr. Baldridge—Do you ever use an inch, or an inch and a half?

Dr. Miller—Yes, I have had in some cases, though perhaps not intentionally.

Mr. Baldridge—A few years ago Mr. Root made a good many hives with a cover and 1½ or 1¾; and a man shipped me a car-load of hives once, and he had mats with them. I didn't use them, though; I threw them away, and that left a space of 2½ to 3 inches above the frames, and I found it very desirable, and I wouldn't object to-day to having a cover made leaving an inch or 1½-inch space. Some say they will fill that space with comb and honey. I have had that done, but that I consider a great advantage; I am ahead so much, and, besides, it is an indication that they need more room.

Mr. Craven—I will ask Mr. Baldridge if any burr-combs were built?

Mr. Baldridge—Where the space is shallow, but I have found it very desirable. The bees belonged to Mr. Flanagan. I had a car-load of them. Frequently I used to find them full of young bees when I would take the cover off, especially after they were on the hive for a while. I took the cover to any colony to strengthen them. All young bees, nearly.

Dr. Miller—I would like to ask whether Mr. Baldridge considers that irregular comb—for, of course, that would be irregular comb built in that space—whether he considers it more desirable to have that there than in the sections?

Mr. Baldridge—Well, of course, the comb would be built irregularly in that top cover, but they wouldn't attach it to the frames.

Dr. Miller—No, that is not the question. Do you consider it is more desirable to have that irregular honey up there than to have it built in sections? Do you think that that irregular honey built there is so much more than they would have stored if they hadn't had that?

Mr. Baldridge—Yes, sir; and I am just so much ahead

Dr. Miller—Well, I just think you are mistaken. [Laughter.] Now, I want to say to you that I have very great respect for Mr. Baldridge. He was keeping bees and mastering the art when I was trying to find out what diseases they had when I heard the noise of the quahking down in the bottom, and Mr. Baldridge has been in the business long enough to teach us.

Mr. Baldridge—I will say this: I seldom find bees working in that cover unless they were lacking room below, and that's why I say I am just so much ahead, that if it hadn't been there they would have put it in the brood-nest. I was producing extracted honey.

Mr. Horstmann—It is not safe to try that plan. After a meeting of this kind we almost always work on the plans spoken of during the convention. I am sure the bees will put that full of comb before going into the super. If you raise the hive up they will build below the frames. It may work all right in Mr. Baldridge's location, but not here.

Dr. Miller—Please let us have clearly before us that Mr. Baldridge is talking of extracting-combs. I haven't any doubt, although you would have two inches of space over extracting-combs, and the bees would have to be crowded a good deal for room before they would put an ounce in there. It takes quite a little bit of crowding to get them to work in a space of 1¼ inches, and you have to take two inches of space over there and give them plenty of comb to fill in for extracting, and you won't be troubled much with irregular combs.

Mr. Horstmann—I am satisfied that they won't work up there if they have extracting-combs to work on. We are producing comb honey. If any one is working for extracted honey, and he likes that space, I believe it would be all right.

Mr. Whitney—Mr. Baldridge, do you apply that principle even to the slightest space above sections?

Mr. Baldridge—I would. In the sections I would add bait-combs, and in this cover there is nothing to entice the bees to commence until they are full. They won't commence to work there until they are crowded.

Mr. Whitney—I should think they would soil the sections.

Mr. Niver—Mr. Chairman, I am responsible for this quarrel, though they get a great deal more honey by leaving a bee-space above the sections. I quarreled with him because the sections were all stained on top, and they always will be. He said he got so much more honey when he filled that bee-space with bees when they get to work. I always believe in the enamel cloth, so the bees can get on top there. All this machinery they get up for sand-papering on top is bosh. With the enamel cloth the bees can't touch the sections at all.

Mr. Purple—How does it tier up?

Mr. Niver—We have all our supplies made with that idea. We have a skeleton honey-board so the bees can not possibly touch it, whether we tier up or not. That point of putting up more honey because you have an air-space filled with bees, I want to find out.

An adjournment was then taken to 6:45 p.m.

(Continued next week.)

Contributed Articles.

Present Status of the Pollination Question.

BY PROF. A. J. COOK.

THE urgent request of a subscriber, enforced by our Editor, leads me to present this important question in the light of the most recent research.

The experiments of Mr. Waite, made nearly 10 years ago, with mine made soon after, and the more recent work of Prof. Fletcher, settled beyond question the following facts:

Many if not all varieties of our fruits that bear seeds must always be pollinated to grow at all, and all to produce seeds. Most, if not all, require—some possibly always, most, if not all, at times—cross-pollination to set a full crop of fruit. As some one has stated, Nature seems to abhor close-pollination. Some plants, like the cereals, and grasses, are fertile with their own pollen. Nearly all our fruit-trees need the invigorating effect of cross-pollination to produce a maxium yield of fruit.

The way these experiments were conducted was to cover the blossoms with netting just before the blossoms opened. This netting was so close in its meshes as to preclude the entrance of even the tiniest insect. The blossoms were kept covered unil they wilted and fell. This, of course, kept away all insects—the great agents of cross-pollination. It was found that in many cases, of pears, plums, prunes, etc., there was no fruit at all when the blossoms were covered. Often, while there was some fruit, there was a very limited crop. In some cases, as with Royal apricots, in my case the covering seemed not to diminish the crop at all; in fact, I secured more fruit from the blossoms that were covered.

It might be objected that the covering, and not need of insect visits to insure cross-pollination, was the cause of the fruit failing to set. In my case this could not be. In more than one instance, where the bees were thronging the blossom-crowded trees, I unwrapped the netting and permitted the bees to visits flowers, after which I at once restored the screen. I marked the blossoms visited, and these, and no other, fruited. In one case, of Kelsey plum, it is very interesting; every fruit that the string-mark showed had been visited by bees developed, and no other.

These experiments show clearly that the screens are no bar to setting and development of fruit; and sustain the view, with emphasis, that cross-pollination is essential in many cases to a full setting of fruit, or even to the development of any fruit at all.

The cases of fruit failure, where there are no bees, or a scarcity of bees in the orchard, and when fruiting was markedly increased where an apiary was secured within or close beside the orchard, are becoming so common in California that there is in many sections an anonymous acknowledgement of the need of bees in the orchard by the orchardists themselves. Indeed, in many cases of trees blooming profusely, each season, and yet setting little or no fruit, there is probably one of two explanations that will always, or nearly always, meet the case: Either there are too few insects (bees are the main agents), to do this necessary work of cross-pollination, or else there is only one variety of fruit-trees that blossom at the time in the orchard. Many orchardists in California have become clearly convinced of the wisdom—yea, the positive necessity—of mixed planting of varieties that blossom at the same time, if one would secure the largest returns.

It will be remembered that a Mr. Smith, now deceased, of one of the Lake Erie islands, was a bee-keeper and also a fruit-grower. He frequently wrote for the American Bee Journal and Gleanings to the effect that bees were not necessary. The islands had no bees, and yet the orchards were immensely productive. Others have orchards of only one variety—Bartlett pears, for example—and yet secure large crops. They, of course, question the importance of cross-pollination. The facts of such persons are undeniable; their conclusions are not at all warranted. There is conclusive evidence that crossing among both animals and plants give added vigor. In fact, the origin of sex in both plants and animals is to be accounted for on this principle of added vigor consequent upon inter-crossing. The Bartlett pear will often produce full crops with no other variety near. It is probable that in all such cases the environment and all the circumstances are propitious, that the trees are in great vigor, and are as a result fertile to their own pollen. It is equally well established that any unfavorable change of season, any lessened care, or untoward circumstance, may enfeeble the trees, and they will become entirely sterile to their own pollen. We can easily believe that trees on the fertile limestone soil of the Erie islands, bathed by the moist lake winds, and abundantly watered by the copious rains incident to the region, would be at a maxium of vigor, and would very probably be self-fertile. I have no hesitancy, however, in asserting that such trees may at any time become barren, unless other varieties are hard by, and unless bees are in the near precincts to act as the needed "marriage priest" to effect the needed cross-pollination.

We must not forget, then, that while it is always wise to mix varieties, and secure the near proximity of bees, yet in rare cases trees—probably those in fullest thrift and vigor—will bear well, even by themselves, and with no insects to bring to the stigmas the pollen from the flowers of other varieties.

One other fact should be borne constantly in mind: In nature, trees and bushes are more scattered—an acre will usually have hardly a score of a kind, and contiguous acres will often vary greatly in their species. Thus the limited

number of nectar-loving insects in Nature are sufficient to do the pollinating work. In our orchards it is different. A hundred trees, and even thousands of bushes and vines, often are crowded on a single acre. Many of these bloom in the early spring-time, when insects are few and far between. Here, then, we must supplement the agencies of pollen dispersion. Bees, fortunately, are just to our hands. Each hive pours forth its thousands of these little flower-lovers. And even in spring-time they crowd the blossoms of shrub and trees. Thus, without artificial crowding of trees and shrubs, we must likewise arrange for supernumerous agents of pollen dispersion. We find these abettors in our bees, each apiary sending out not infrequently millions of bees to engage in the transfer of pollen from flower to flower. These facts then are settled :

1. Cross-pollination is usually needed to secure full fruiting.

2. Occasionally very vigorous trees or plants are fertile to their own pollen.

3. Seeds can never be produced without pollenization.

4. Rarely trees will bear fruit (seedless fruit) without pollen. The navel orange is an example.

5. Insects are necessary to cross-pollinate the bloom.

6. In the crowding of varieties as we do in orchard culture, we need more than the native insects, and in such case the honey-bee is the only available agent.

7. The wise orchardist will always mix varieties in his orchard, and will look to it that abundant bees are always near by at time of bloom. Los Angeles Co., Calif.

Queen-Rearing—Gallup vs. Alley Methods.

BY ARTHUR C. MILLER.

"AND the pot called the kettle black." Dr. Gallup and Mr. Alley are on the point of coming to blows, and all because each is sure he is right, and that the other is wrong. But they are both right and both wrong. The man who steps between two combatants generally gets his own head broken, but even at the risk of that I will step in here and see if I can throw a little light on the subjects discussed—if one can call assertions and counter-assertions discussions—and stop the "scrap."

I have forgotten who began it, but I think it was Dr. Gallup's article on "umbilical cords." Granting that, I will try first to show the Doctor wherein he is wrong, and where he has been taking effect for cause.

I suppose the Doctor is familar with the metamorphosis of insects, but for the benefit of those who may not be I will state that no such thing as an umbilical cord is known to exist in the insect world. The larval bee during its growth casts its skin several times, and not only its skin but the lining of the alimentary canal. It will be seen from this that any umbilical cord connecting the larva with the food or cell would be cast off on the first moult. Besides this, there is no need for any such "cord" for assisting the nourishment of the larva, for not only does it take food with its mouth but it likewise absorbs it through that portion of the skin lying in the food. After the cell is sealed the larva spins its cocoon, the silk coming from an opening in the lower lip. When the spinning is complete the larva casts its skin for the last time, and it is this last *cast with its silken attachments* which the venerable Doctor has mistaken for an umbilical cord. It has nothing, and can have nothing, to do with the nourishment of the larva.

I am sorry to take this prop from the Doctor, and I fear it will embarrass some gentlemen who have been claiming it as a great virtue of their queens.

The Doctor quotes from Prof. Cook in support of his contention, that the best queens are reared in strong colonies, but neither the Doctor nor the Professor tells us *why*. To be sure, the Professor does say : "As the *quantity and quality of the food* and the *general activity* of the bees are *directly connected* with the *full nourishment* of the queen-larvæ, and *these only at the maximum in times of active gathering*—the time when queen-rearing is naturally started—we should also conclude that queens reared at such seasons are superior." (My italics). Dr. Gallup says that only in big colonies can good queens be reared, and only in such colonies are cells containing the "umbilical cord" produced. Dr. Gallup's description of a big colony conveys the idea of a *minimum* of 20 Langstroth frames (or the equivalent) covered with bees. Now, Mr. Doolittle, whose queen-rearing colonies at a *maximum* are equal to but a half of what the Doctor considers safe, says all his queen-cells show the "cord." Surely there is a "missing link" hereabouts. But never mind, for it is not the size of the colony that tells the story, nor the "general activity of the bees," to which we must look for an answer to the riddle, but the *constitution of the colony*, and it is just here where the Doctor's naturally big colonies win.

The feeding of all larvæ is, under normal conditions, attended to by the young bees, and a big (naturally big) colony has an abundance of these. Now if we are to talk of rearing a lot of queen-cells under the supersedure or swarming impluse, simultaneously with care of the worker and drone brood, such a colony will and can do it perfectly. But to assume that such a colony without any brood to care for, is necessary to the production of 10, 20 or 100 cells, is an absurdity. The Doctor has so mixed his subjects that I am unable to decide whether he is talking of rearing queens commercially by his plan, or simply of the ordinary succession of queens in swarming.

Mr. Alley was writing of commercial queen-rearing, and as I have several times visited his apiary in the height of his queen-rearing season, use his system myself, have tried all known plans, and know the *laws* governing successful queen-production, and that Mr. Alley's system conforms to those laws, and that I neither rear queens for sale nor am under any obligation to Mr. Alley (though I believe he has given me two queens), I believe I am in a position to make an impartial statement of his side of the case. The "laws" governing the production of queens I have given in a previous article, so in this place I will only try to show why a few bees of proper age are sufficient for "growing" a *proportionate* number of cells.

From experiments, which as yet are by no means conclusive or exhaustive enough to warrant positive statements, I believe that one bee (nurse-bee) can and does supply food for several worker-larvæ. Now is it "away off" to believe that a pint of nurse-bees (1600, Root's figures) can properly and successfully rear *one queen* and at the same time feed two or three hundred worker-larvæ? These are the conditions under which Mr. Alley's nuclei rear queens when he fails to give them queens. Queens thus reared I have seen at the head of just such colonies as Dr. Gallup describes. But Mr. Alley does not depend on his little nuclei for rearing his queens ; it is only by chance that now and then one has the opportunity to rear a queen. He starts his cells in "full colonies," so far as bees, honey and pollen are concerned, but destitute of brood except for the prepared strips for queen-cells. For cell-building colonies he selects those particularly strong in young bees, and he goes even farther. After the cells are well under way he takes them from the starting colony and gives them to a colony having lots of hatching brood as well as unsealed larvæ—one from which the queen was removed twelve hours previously. By this method he gets his cells superabundantly stocked with food, and the resulting queens attest the value of the system.

To revert to the quotation from Prof. Cook. He lays stress on the conditions of honey-flow, weather, populousness of colony, etc., saying that the best queens can be reared then. Certainly, *because* nurse-bees are then very numerous. Many bee-keepers grasping the conditions only so far as stated by Prof. Cook, have assumed that feeding the cell-building colony will accomplish the desired end. They have entirely missed the point. The feeding must be done in time to cause the rearing of a lot of young bees, and *these* are to do the work.

A word in regard to nuclei and I will close : First their size must be governed by temperature ; that is, locality and season of the year. Mr. Pratt succeeds with very small ones ; Mr. Alley who is close to the coast has them twice the size of Mr. Pratt ; and a friend nearer the Canadian line uses them a half larger than Mr. Alley's.

These diminutive colonies must be regularly fed if their success is to be ensured. For this Mr. Alley uses sugar syrup. Honey must never be used. If a nucleus becomes too populous he exchanges a frame of brood and bees for an empty frame, the removed frame going into one of the stock colonies he uses for making nuclei. Sometimes he accomplishes the same thing by moving the nucleus to another spot, being careful not to do this when it is likely to cause the loss of a virgin queen.

If the bee-keeper will take the trouble to learn exactly what Mr. Alley's nucleus system is—its simplicity, its cheapness and its mobility—they will adopt it, only varying the number of combs in the nuclei to fit their climatic conditions.

If all hands will stop mud-throwing and turn to and look for the *why* of things, the apicultural press will be more interesting than ever before, and bee-keeping will fairly jump forward. Providence Co., R. I.

Why Feed Bees Sparingly and Often?

BY C. P. DADANT.

A FEW letters of enquiry received by me since the publication of the article about spring care of bees, on page 149, have shown me that some of the beginners do not understand the reason why the bees should be fed sparingly and often, to stimulate spring breeding. This is an important matter, and I believe it should be elucidated as fully as necessary.

When the bees are not harvesting anything in the fields, they are comparatively quiet. The breeding takes place, as the warm days come, but is not pushed with much vigor until the blossoms begin to appear and a little nectar is found. Whenever they begin to find nectar, there is more stir in the hive. The bees that come home from the field, instead of depositing it in the cells, often hand their load to the young bees, so as to be able to get off to the field again. Thus a number of bees are carrying about. Whenever one of them meets the queen, she respectfully and deferentially holds her proboscis towards her and offers her a taste. Being oftener solicited to eat, the queen consumes more honey, and her eggs are matured more rapidly. So, during a honey-flow, no matter how light it be, the queen's breeding increases until the fatigue of a protracted laying puts an end to her prolificness.

The doings that I have just mentioned may be witnessed daily in an obervation hive, made of one single comb, with glass on both sides. Such a hive is very useful to learn the habits of bees. You may read of such things in books or in the journals, but they do not impress themselves upon your mind when you read of them as they will if you are an eye-witness to the details of the hive-life. With such a hive, you have a source of endless information and amusement. You can see the actions of the bees when returning from the fields, the nursing of the young, the laying of the queen, the respectful care which the bees take of her, their sorrow when she is taken away, their labor to replace her, the rearing and hatching of both bees and queens, etc. An observation hive ought to be kept at least for a portion of the year, by every one who is desirous of becoming fully informed as to the habits of the bees.

If the bees are fed sparingly and often, there is a constant carrying about of nectar, the queen is offered food often, the bees are stirred up and create more heat than if quiet, and the result is a greater amount of brood produced. If the feed is given in large quantities, all at one time, for the entire season and to enable them to reach the honey crop in safety, it will, of course, have a good effect, but will not be so advantageous as the same amount given at different times. The bees will store it away to use as is needed, but, a few days after feeding, they will be back again to a quiet condition, unless the flowers are appearing. To be sure, if there were flowers yielding honey, I should not think of advising any one to do any feeding. We are only speaking of the days, unluckily too numerous, in early spring, when the bees can find nothing, or next to nothing, in the field. With repeated light feeding, the colony is kept in a stimulated condition, the amount of food consumed will be greater than if the nourishment is given all at one time, but the number of eggs laid will be much greater, and the colony will be strong earlier.

It is not all to have plenty of bees in your hives, you must have them at the right time. If a colony remains weak till the opening of the crop has begun, unless this crop is to be protracted six weeks or more, for it takes 21 days on the average for the worker-bee to hatch, and after that about 10 days more before she becomes an active field-worker; so it is in March and April that we must induce our bees to breed. The March bees strengthen the colony and enable it to rear the April brood on a larger scale, and the latter is in the field just about the time of the opening of the harvest.

The colonies which were fed sufficiently and properly, sparingly and often, during the spring months, are sure to make the good colonies for the harvest, unless their queen lacks in prolificness. Let me cite you an instance of involuntary feeding which will show the help that light and constant feeding gives to a colony.

At the end of the winter in 1902, we had a few hives in which the bees had died, though their supply of honey had been ample. Each of these hives contained several combs heavy with honey. They were cleaned up and closed up, awaiting the proper time to re-stock them with bees. They were very old hives, had been manufactured by us in 1870, and had been in constant use since that time. One of the hives had a very small hole on the underside, in its bottom-board, a hole so small thst only one bee could get through it at one time, and this even with some difficulty. This small hole was discovered by the bees of one of the colonies in the yard and they immediately went to work to appropriate the spoils. We had noticed the bees flying about, a few at a time, but a cursory examination had failed to reveal any trouble, so nothing was done to interfere with them. The robbing of that honey extended over the space of at least two weeks, by the bees of just one hive. It changed the condition of that colony so much that it seemed to have doubled its strength within a month or so, and its crop was about double that of the next best hive in the yard. It had bred its bees at the right time. The robbing of the combs had extended over this long period of time, just because it was impossible for the bees to get through the hole any faster, even their own eagerness being an impediment to their progress, as two or three bees would often try to get in at the same time and interfere with one another's speed.

This is a good instance of the good done by feeding sparingly and often. I would, however, not recommend a voluntary following of a similar course. The bees that become accustomed to this robbing in the open air soon become a nuisance, while the bees that are fed at home in the evening are never led into bad practices unless pilfering chances are opened to them.

It is hardly necessary to repeat what I said before, that feeding should be done with judgment. A colony heavy with honey should not be fed, as it may accumulate too much. A good way to stimulate such a colony is to uncap a few cells of its sealed honey from time to time. The doing of this forces them to handle their honey, and acts in a similar way to feeding. On the other hand, a very weak colony that has but a few handfuls of bees requires but a very scanty feed. Too much will cause its ruin, for it will be unable to take care of it, and the robber-bees from stronger colonies will attack and may overpower this one. The apiarist must examine his colonies often, judge of their strength and their needs, and use care and discernment as to the amount and frequency of feeding to be done.

Hancock Co., Ill.

Association Notes.

Good Advice to Bee-Keepers.

There are many keeping bees in the suburbs of cities, and whose bees are an annoyance to neighbors.

SPOTTING CLOTHES.

This is generally worse the day bees are set out on the summer stands. Bees go only short distances at that date. It is best not to set the bees out on wash-days, but the day following; by the next week the trouble will be over. If they must be set out, and it is wash-day, go to the neighbor who is washing, explain the situation, and offer a present of some honey if she will delay washing one day.

AT WATERING-PLACES.

Always provide abundance of water in several places for bees. Shallow wooden dishes with sloping sides, with a slatted-board float, is a good form of watering dish. Somewhere have some salt, also air-slacked lime where bees can go to. There is something about it bees like, and it will save trouble to supply the bees' demands. If your bees bother a neighbor's pump, go and put a piece of cheese-cloth over the spout and fence the bees out as well as furnishing a strainer for the water. Stock tanks are places of annoyance. Just above the water line on the inside of the tank fasten a 3-inch strip, it will not bother the stock, and will keep the bees from going there. Also see to it that the overflow is so arranged as not to make a mud-hole near the tank.

IN THE NEIGHBOR'S GARDEN OR FIELD.

If your neighbor or his horse are stung by your bees in his garden or field, I find it a good plan to donate some honey, at the same time ask him to do such work on cool days or early mornings. If he is unable to keep the garden clean, then some early morning surprise him by taking

your own horse and cultivate for him up to breakfast. Generally one such act will establish such good feelings no farther trouble will arise. I have proven it so.

AT GROCERY STORES AND RESIDENCES IN THE FALL.

After the honey season often bees are a great annoyance at the above places, especially in empty sugar and syrup barrels, and candy shops. Go to those places and ask to place the packages where bees can not get to them. Go to sugar-cane mills and keep the premises cleaned up, and to neighbors' kitchens where bees come in and bother while canning fruit, and ask them to keep the door and windows screened while at such work. Bees do not go where no sweets abound.

IN THE HIGHWAY AND PUBLIC PLACES.

If people or teams are stung in such public places by your bees, it is your duty so to locate the bees, or change the surroundings, that they do not disturb the public. If damage to person, stock or property is done by the bees, the owner is liable for damages; and if it continues may become a nuisance. High board fences, or high hedges are a great help. Even with all possible precaution if bees are near the street the bees at times will bother. Keep out of trouble if possible. Don't get the idea that the National Association can win every case. You must keep within the law if you want protection. Avoid conflicts, compromise, and live up to the *Golden Rule*. N. E. FRANCE,

General Manager National Bee-Keepers' Association.

Our Bee-Keeping Sisters

Conducted by EMMA M. WILSON, Marengo, Ill.

Spring Stimulative Feeding—Gnawed Cappings.

1. What is the best time to begin feeding bees in the spring to start them to brood-rearing? Is the middle of March too early?

2. What is the dark brown substance, similar to sawdust, found on the bottom of the hives? Is it the excrements of the bees? ILLINOIS.

ANSWERS.—1. If the weather was such that the bees could fly every day, and there was nothing for them to gather, then it might be a good thing to feed to stimulate brood-rearing, no matter how early it might be. But such a condition does not occur very often, and it may be well, unless one has had a good deal of experience with bees, to let stimulative feeding alone, for it is a two-edged sword that may do more harm than good.

2. Mainly the cappings of combs that the bees have gnawed away during the winter in getting at the honey in sealed combs. Some say that there are also some excrements of the bees mixed with it.

Using Partly-Filled Sections—Hiving Swarms—Shaken Swarms.

1. I desire to use sections again which were placed on the hives last year and not filled out. They are some mussed. Should they be all scraped off nicely, or just set out again as they are?

2. What do you consider the best way to hive a swarm of bees, in a 10-frame hive with all old combs?

3. Can old combs be satisfactorily used with shaken swarms? If so, what is the *modus operandi?*

4. If starters are always used with shaken swarms, will not the old combs accumulate for the moths to regale themselves in? L. S. R.

Ashtabula Co., Ohio.

ANSWERS.—1. If the bees have never put any honey in them, or if they were all nicely emptied out by the bees *last fall*, put them on just as they are. If they were not emptied by the bees last fall, and contain honey, don't use them at all, for almost surely some of the honey left over winter will have granulated, and the smallest amount of granulated honey left in the cells will affect the honey put into them.

2. I don't know of anything different from hiving a swarm on full sheets of foundation or frames with starters. Perhaps you had something else in mind; if so, ask again, and I will try to answer.

3. Yes, some prefer old combs to anything else. Remove from its stand the hive to be operated upon, and put in its place the hive with empty combs. Then taking one by one the combs from the removed hive, shake and brush the bees into the new hive, just as you would if foundation were used.

4. If starters are always used there certainly would be an accumulation of drawn combs, but it would not be necessary to turn them over to the tender mercies of the moths, for they would be melted up—but I should use them.

Hiving a Swarm from a Tree.

Would some of the bee-keeping ladies tell us what they do in case a swarm of bees clusters in a tree out of reach with a pole? WISCONSIN.

ANSWER.—I would keep the wings of the queens clipped so that when my bees clustered in a tree out of reach of a pole, I would pick up my queen and cage her, put her at the entrance of the hive, and go on with my work serenely oblivious to the fact that those bees were in the top of the tallest tree they could find. They might come back at their leisure.

That is, I should generally do that way. Occasionally it will happen that a swarm will come out with a virgin queen, in which case I should take a saw, climb that tree, saw off the limb, and bring them down, if I could reach them. If they were away out of reach on an overhanging branch, out of all possible reach by climbing, and out of reach of a pole—well, it is a big nuisance, but I will tell you what we did do once with just such a swarm. We nailed two long, light poles together, drove a spike in the end of one, and over this spike we placed a long rope, with a stone securely tied in the end; with a good deal of trouble we succeeded in pushing the stone over the limb and down came the stone bringing the rope with it, and we were masters of the situation. We put the hive on the ground under the limb, taking hold of both ends of the rope gave it a lively jerk, and down came the swarm squarely in front of the hive. Part of them made a bee-line for the hive, and part persisted in going back to that limb, and we had to keep up a lively jerking on that rope to prevent quite a cluster from returning to the tree, but we finally got the swarm.

I often think such a swarm costs more than it is worth to get it. I am sure I should hate to be obliged to climb after them all.

Any good stone-thrower might tie a stone to the end of a ball of wrapping-twine and throw it over the limb, then tie the rope to the wrapping-twine and pull it over.

Perhaps some of the other sisters will tell us how they do.

The Afterthought.

The "Old Reliable" seen through New and Unreliable Glasses.
By E. E. HASTY, Sta. B Rural, Toledo, O.

BEE-FLIGHTS IN WINTER.

It's a better showing than we can often make—but not such a great deal better—that Washington puts up on page 110—two flights in November, none in December, two in January, two in February. We don't usually have it quite as damp as they do (which counts for something), and my bees last winter flew, once in November (three successive days), not at all in December, once in January, twice in February. But then, my worst winter would show no flights at all, and probably their worst would still have some.

MOVING BEES A SHORT DISTANCE.

I think E. F. Atwater, page 116, has a good idea. When you move a hive a short distance it is better than the regulation board set up in front to make every bee that comes out dig out through a mess of grass. Can't help knowing that there has been a change then.

EXTRA COMBS FOR WINTER.

It would be handy when one has extra combs of honey, and bees to go in the cellar that have not honey enough, to put on an upper story containing a heavy comb or two and some empty ones. We have one good witness to the important matter that they fail to find the honey and go up. P. H. Davis, page 111.

BEES CARRYING DOWN HONEY IN THE FALL.

"Nothing succeeds like success." Mrs. Griffith, not minding her 79 years, has succeeded so far in making her bees carry down honey in the fall—has succeeded both with sections and with light combs. Page 120.

LONGEVITY OF DIFFERENT RACES OF BEES.

Some experiment-station work on the longevity of different races of bees is much to be desired. Glad the Texas station has an eye on so important a problem. Hope they will not forget to compare inside the same race, the meanest bees they can get with the best ones they can get. We need proof that poor bees are shorter-lived than others. Page 131.

CARNIOLAN-ITALIAN HYBRID BEES.

As to the Carniolan-Italian hybrid, J. E. Chambers seems to make an enthusiastic report—begin storing surplus when the pure Italians have only got to breeding fairly. This is Texas, we must remember. And as to whether giving our bees a dash of Carniolan blood may not make still worse our present worst evil—uncontrolled swarming—as to that, he is not able to re-assure us much—except he himself has got through two seasons without any serious trouble.

Finding bees over three miles from home by thousands, and that, too, when no dearth prevailed, is a valuable observation. Only in the unusual case when one has bees unlike all surrounding bees is it easy to tell exactly how far bees go. Page 142.

WISCONSIN BEE-KEEPERS THAT HELPED.

So 180 bee-keepers out of 600 would help Mr. France in his move on the legislature—to the small extent of answering his letter. Glad to hear that with some poking up they afterward did much better than that. Page 149.

BEES UNDER GLASS IN APRIL.

Yes, Mr. Dadant, bees with royal abundance of pollen and honey already in the hive, and put under glass in April, ought to boom, and do extra-big things, as yours did. And it is a wise suggestion of yours that glass over the bees won't make the forage outside any more abundant. If they are to depend on that alone, while having very scant store within, 'twould hardly be worth while to "greenhouse" 'em at all. Page 149.

CAUSE OF SWARMING—REARING QUEENS.

Stachelhausen is one whose opinion we respect; and he thinks swarming is caused by a multitude of young nurses having prepared food in their stomachs and no young brood to feed it to. That's the dominant idea, I guess. Perhaps we shall have to expand it so as to take in as helpers in lesser degree all the other discontents of prosperity. We can note as a curiosity that the nurses don't get what they are after, if that's what they swarm for. A number of days must pass before there will be *any* young brood to feed in the new homes.

Sagacious remark. A queenless colony will rear some sort of a queen even if the conditions are very bad; but bees over an excluder, where a good queen is below, unless the conditions are somewhere near right they *will not rear*; and this fact is some protection against worthless queens by that method. Page 150.

Questions and Answers.

CONDUCTED BY

DR. C. C. MILLER, Marengo, Ill.

[The Questions may be mailed to the Bee Journal office, or to Dr. Miller direct, when he will answer them here. Please do not ask the Doctor to send answers by mail.—EDITOR.]

Entrance-Guards and Swarming.

I have been thinking about bee entrance-guards to keep my bees from swarming. If I have a guard on a hive and the bees are swarming, and the queen can not get out, how many times will they swarm and go back into the hive before they go to the woods? or won't they go to the woods at all? What will become of the queen?

MISSOURI.

ANSWER.—Bees don't always act alike, but the general rule would be something like this: When the first queen-cell is sealed the bees will swarm out, and no queen being with them they will return, for a swarm will not go to the woods unless a queen is with them. A day or two later they will swarm again, and the swarming may be repeated several times in the next week or ten days. At the end of that time the first virgin queen will leave her cell, and the old queen will turn up missing, being put out of business either by the workers or the young queen. If the entrance-guard keeps the young queen from taking her wedding-flight, she may, after a time, begin laying, but her eggs will produce nothing but drones.

Shallow Extracting-Frames.

1. Do shallow extracting-frames need wiring?

2. Is it best to use foundation in shallow extracting brood-frames, if so, how wide a strip? OHIO.

ANSWER.—1. Yes, if filled with foundation, unless the foundation is heavy.

2. If used for brood-rearing it is better to have them filled with foundation. If only for extracting a starter half an inch deep may do, the chief purpose being to get the combs started straight in the middle of the frame.

Break-Joint Honey-Board—Paint for Hives.

1. What is meant by break-joint honey-board?

2. I would like to know whether any one has ever painted hives with Avenarius Carbolineum instead of white paint? If so, did the bees accept it? They say mice will not gnaw, or the ants bother, hives painted with it.

3. How does the new Danzenbaker bottom-board and cover strike you? And how do those that have used them like them? IOWA.

ANSWERS.—1. A break-joint honey-board is one made with slats like a wood-zinc excluder with the zinc left out. Instead of having the spaces between the slats correspond with the spaces between the brood-frames, the spaces between the slats are directly over the centers of the top-bars, and that makes it called "break-joint." It has been claimed that with this break-joint feature there were special advantages of importance, but in my own experience I found no such advantage. With thick top-bars and proper spacing I now dispense with honey-boards altogether.

2. I can say nothing about this from personal experience; perhaps others can.

3. The Danz. bottom-board, patterned after the Miller bottom-board, is good. The new Danz. cover is ingenious, and the reversing feature is of value. If, upon trial, it proves never to warp or separate at the joints, it ought to be a material improvement over former plain board covers.

Transferring Bees—Combs a Solid Mass—Good Bee-Country.

1. I am just starting in the bee-business out here in western Washington. I have 8 colonies, transferred them from box-hives or took them from trees, all except one colony, but did not get any increase from the 8 colonies. What was the reason?

2. In putting them into Langstroth-Simplicity hives, I tied them with strings, as recommended in "A B C of Bee Culture." That is where I made the mistake, as the bees cut the strings, and now the 8 frames are one solid mass of combs. What shall I do with them? I would like to have them in such a shape that I can manipulate them. I have been thinking some of letting them alone until next fall, then put them on straight combs in new hives. How would that do?

3. This seems to be a good country for wild bees. Is that an indication of its being a good bee-country? Last year I went out into an old logging work, and found three bee-trees in less than three hours. I found nine trees in four days. I consider that good work for a novice at bee-hunting. We had a lovely month of February, and my bees gathered pollen for two weeks, off of what some people ca

pussy-willow. It seems to furnish a large amount of pollen for early spring brood. But, March, oh! she is unruly, for snow is 10 inches deep in the woods, so I took snow by the forelock and killed three deer on it.

I like the "old reliable" American Bee Journal, but some of the veterans seem to be in conflict in their ideas, perhaps on account of locality. WASHINGTON.

ANSWERS.—1. The lack of increase might come from more than one cause. It might be too poor a season for swarming, it might be that the transferring was too late, or it might be just possible that your bees are little given to swarming.

2. You will do as well not to wait till fall. Perhaps as good a plan as any is to wait till three weeks after the colony swarms. After that time the worker-brood will be all hatched out, and you can either transfer combs or melt them up.

3. Yes, wild bees are the same as tame bees, and if one does well the other will.

You don't need to send a stamp when you send a question.

Rape as a Honey-Plant.

Is rape much of a honey-plant? Would it be of any use if sown in grain? It is sown in grain to be used for pasture during the fall, and I have understood that the bees work on it. I will seed down some this spring to alsike clover. How would it do to sow rape with it? and how much to the acre?

One of my neighbor bee-keepers, Martin Anderson, had the misfortune to have his bees nearly all drowned while in the cellar.

MINNESOTA.

ANSWER.—I have never heard much about it in this country, but in Germany rape is highly prized as a honey-plant, and sometimes bees are hauled some distance to be in reach of rape-fields. I doubt the the advisability of sowing with grain, but have no positive knowledge about it, and perhaps some one else may say if I am wrong.

Moving and Purchasing Bees—Transferring—Danzenbaker Hives—Sweet Clover.

1. I have bought a few colonies of bees in box-hives. When is the best time to take them home?

2. In purchasing bees, if you had your choice of 30 colonies in box-hives at $3.00 per colony, how would you proceed to select them?

3. I propose to transfer them to movable-frame hives. When is the best time to do this?

4. Would you advise using full sheets of foundation?

5. Our climate is rather changeable. How do you think the Danzenbaker hive would work by using 2 brood-nests one above the other, and keep the colonies strong? How would it work to slip a super between them when about to swarm?

6. Would you advise the use of Danzenbaker, or some other hive?

7. How is the foundation fastened to the Danzenbaker frames? Is it fastened the same as the Hoffman frames?

8. How do you think sweet clover will do here in central Wisconsin? WISCONSIN.

ANSWERS.—1. You can take them home at any time now. Better now than later when the frames are full of brood and honey.

2. Select those that seem to be the strongest in bees, and not too light in honey, judging of the former by tipping the hives, and of the latter by hefting them. In addition to this, if you can have those that cast swarms last year you will be sure of young queens.

3. In fruit-bloom is a good time, although it is perhaps still better to transfer three weeks after swarming.

4. Yes.

5. The two brood-chambers would be all right if intelligently used, but it is doubtful about the supers between.

6. I should perfer the dovetailed; others might prefer the Danzenbaker.

7. Yes.

8. Finely.

Mating of Queens and Drones—Rearing Queens.

I have several books on bee-culture, but none of them strikes the principal point—they do not point out the way to mate Italian queens to Italian drones in an apiary of blacks or other bees. I am sending to Italy for two queens, one to breed drones, the other queens; although they should be from different sources. I may say I have been looking for a discussion of this question in the American Bee Journal, but it has not turned up. I have 17 colonies and the larvæ will be transferred to artificial cups and cells placed in a Doolittle nursery.

1. Please say how queen-breeders mate queens purely while bees of other "nationalities" are present?

2. Can this be done without entrance-guards, as I have none?

3. Queens are to be hatched in Doolittle nursery-cages, introduced to nucleus 3-frame hives.

4. Please give me the exact diameter across top of wax-cup pegs, on which the cups are to be cast. I can make them, and they look beautiful, but I fear mine is a little too large.

5. Please tell me whether burlap is what we call "American oil-cloth?" ENGLAND.

ANSWERS.—1. They don't; at least not always. For if it is desired to keep a certain kind pure, they do not have any other kind in the apiary. But something may be done toward getting what you want in this way:

Put in the cellar the hives containing the drones and the young queens. After it is too late in the day for other drones to fly, take out the cellared hives, and incite them to fly by feeding. You may be a little more sure of this if the cellaring has continued two or three days. You may also succeed by taking them out in the morning, so as to get them to fly before other drones are out.

2. For the foregoing no entrance-guards are needed.

3. The nucleus hives will be all the more convenient to carry in and out of the cellar, and perhaps you could have in these your drones as well as queens.

4. The numbers 3, 4, 5 will help you to remember the diameters of the different kinds of cells: 3 queen-cells to the inch, 4 drone-cells, and 5 worker-cells. But I doubt it is so important to have the queen-cells of exact size as it is drone or worker.

5. No, they are utterly different, American oil-cloth or enameled cloth being impervious to water or air, and burlap being very open. Perhaps you call burlap "gunny sacking." It is a coarse stuff made of jute, flax, or manila, and is used for very coarse bags, for wrapping around furniture to be shipped, etc.

Success to you in your far-away English home.

Alsike Clover—Shade-Trees.

1. Does alsike clover produce honey the first season after seeding? and does it continue alike each year?

2. Would you advise shade-trees for bees as far north as this?

3. Which is the best honey-producer, alsike clover or alfalfa? WISCONSIN.

ANSWERS.—1. I *think* it yields little or no honey the same year it starts from the seed, and does not live beyond the second year. If wrong, I shall be glad to be corrected.

2. As far north as Wisconsin bees will probably not be injured by the shade of trees, and possibly they are the better for it. However it may be for the bees, I should like it for the benefit of the bee-keeper.

3. That depends upon what place you are talking about. In some parts of the West alfalfa leads, but in Wisconsin an acre of alsike will probably yield more honey than a hundred of alfalfa.

Honey in Unfinished Sections Not Granulated.

I have seen quite a lot lately in the Bee Journal about the honey in unfinished sections candying, and as I have on hand about 150 of them, that I intended feeding to my bees this spring, I took a look at them to-day, expecting to find them all candied, but such was not the case. The honey is just as clear as when I put them away, so I guess the bees will have no trouble to clean them out this spring, as soon as the weather is warm enough so I can give it to them.

Now this seems strange, in the light of the experience of others, and I cannot account for it unless the place where the sections are kept has something to do with it. I keep them as I do my comb honey, in a hall in the second story of my dwelling-house, where the heat from the lower rooms goes up the stairway and keeps them warm. Is there anything unusual in this? NEBRASKA.

ANSWER.—Very unusual, and not unusual at all. It is unusual for honey to be kept in so good a place, but not unusual for it to stay clear when kept in a hot enough place.

Cleome and Other Honey-Plants.

What about artificial pasturage for bees? Is Cleome pungens worth cultivating for the honey alone? Is the honey of good quality? Is it light or dark, and how does it compare with white clover honey? Please give the names of other plants that are good for artificial pasture in this locality and vicinity?

I would be pleased to know if there are works on the above subjects. I have a couple of acres to devote to artificial pasture just for the honey if it is probable that success might come of it in any way.

I am a beginner and will say that last spring I purchased eight colonies of pure, or nearly pure, Italians; the first thing I did was to lose four of my old queens, but with the four other queens and the other four queenless colonies I succeeded in rearing 31, and all are in good shape now—all that I have opened except one have lots of brood in all stages. One hive has about six Langstroth frames, and the others have two to three frames, of eggs and larvæ. We have considerable white clover and sweet clover in this neighborhood. We have quite a bit of marsh-pasture, and some of the yellow flowers (coreopsis), making a good early spring and late fall pasture, especially the yellow for fall. We also raise buckwheat here. WISCONSIN.

ANSWER.—Cleome pungens is not worth cultivating for honey alone. I do not remember to have seen any statement as to the character of its honey, and I don't know whether any one ever secured enough of it to tell just what it was like.

There is probably no work published that treats particularly on honey-plants, although the text-books on bee-culture give some information regarding them. It is not likely that you will find any plant that will yield sufficient honey to make it profitable for you to occupy land with it unless it yields a profit in some other way. Sweet clover will probably come as near it as anything you can find. If stock in your locality have learned to eat sweet clover either green or dry, it will pay to occupy good land with it.

What Yon Yonson Thinks

It seems kine of funny how da shook svarming fever spred so fast. It vas yust few cases till las' summer it broke out plenty bad, an before da leavs fall purdneer every bee-keeper had tuch of it; an sum got it plenty bad. Ay tank mebby nex' summer dom goan to shake der bees so dom kant rest. Now, for da big bee-keepers ay tank it vas all rite, but for little bee-keepers lak Yon Yonson ay tank it is better to sow som catnip an sveet clover and plant more rossbers. An den pat dom bees on da back an tell dom to elder fish or cut bait. But not shake dom any more dan nessesary. Ay don't vont to shake dom, or brush dom, or kick dom aroun ven dom iss good.

Som say it is better to drive dom two times, so purty soon ven dom big bee-keepers vont help, dom vil advertise fur feller to help drive da bees. Now, Yon Yonson don't need help to drive da bees to svarm, but mebby nex' summer he goan to need feller to drive da red clover bees to da clover field, an hurd dom so dom don't git to da catnip. Ay tank dat goan to be plenty hard yob, coz dom is yust so crasy fur catnip som anyting vat never vas. My goodness, vy for dom bees svarm for any vay!

If ve know fur shure den ay tank its better ve don't let dom svarm a tal!, but let dom yust roll in der hunny.

Now, ay goan to tell you vy for dom bees svarm. In da spring ven dom little bees begin to mak hunny, an dom little grasshoppers begin to mak grass, an dom butterflies begin to mak butter, den da nites is kine of cool, and dom bees don't lak to sleep upstairs, an dom begin to pack avay hunny in da top of da brood-frames, an ven dom git it capped over dom don't lak to go upstairs an vork, so dom keep on crowding der quveens furder down, an purty soon der quveens he git mad, an he call der house to order, an dom hole big meetings. Da young bees vat is use to have play spells, dom lak to have plenty big time, an dom mak moshun to svarm, den da drones vot hang aroun' an don't vork but always lak to ete at da first table, dom secon' da moshun, an ven dom vote da drones holler "Eye" so loud dat da moshun is carried. An dom git reddy to svarm. But if dom hole meeting in evening den da old bees is home, an dom vote "No," an den dom send da drones upstairs to bed, outen any supper. An den purty soon dom go to vork an pack avay hunny in da upstairs.

Now, if you don't give dom nuff room den dom crowd der quveens, an da quveens he git mad an dom svarm; but if you give dom upstairs too big, den it is apt to be too cold, an dom don't vas like it, an yust croud der quveens an svarm yust der same; but if you vil yust put on shallow extracting combs, and den ven dom begin to vork in dem, den give dom room yust so faster as dom need it, but if dom begin to croud der quveens den yust uncap der hunny in da downstairs an smoke der bees so dom tak on plenty hunny, an den

shut da hive and smoke da entrance so dom go upstairs an unload, den dom soon mak room for der quveens, an' der queens he yust go on packen avay eegs for vinter, an der bees carry deir hunny upstairs, an everyting yust vork lak forty-seven, an dom don't even tank 'bout svarming.

An' if Dr. Miller vill yust try das plan to mak dom tak da hunny from da downstairs and put it in der shallow combs above, an so on, he soon don't haf to run after da vilo-da-vip of da non-svarming bees.

Mr. Baron Lie-plenty-bad, he got noder plan. He pump der quveens full of high life, an den he tie little string vat dom call Pupaskinnæ Castofficæ roun der quveens neck, so he don't vas git avay, an den der quveens he lay more as a million eegs per minit. But ay hurd since dat it ain't so. Mr. Lie-plenty-bad must be awful smart feller, but der quveens got little too much hi life, so he scratch round an vord his feet out, an he hav to git cork legs for him. Ay lak to git von of dom quveens. YON YONSON.

FROM MANY FIELDS

Feeding a Little Daily.

I am just a beginner in bee-keeping. I had 15 colonies last fall, and have lost 2 colonies this winter. I am feeding the bees a little every day, so as to get the hives full of bees by the time the fruit-trees are in bloom.

JOHN M. BAKER.

Wood Co., Ohio, March 23.

Prospects Not Encouraging.

The prospect for this season is only average, as we have had, up to this date, only half enough rain to insure a crop.

JOHN G. COREY.

Ventura Co., Calif., March 5.

Cleaning Out Partly Filled Sections.

On page 130, Mr. Baldwin says that the Bevins method of getting partly filled sections cleaned out may be all right in theory, but is not practical for two reasons:

1. If the colony is a little weak it is liable to get chilled because too much cold air circulates through the body of the colony.

This may be true of bees in Dupage Co., Ill., but it is not true of colonies of bees here, unless colonies are so weak that it would not be advisable to try to winter them. As a matter of fact, I do not feed weak colonies until I have united so as to have colonies of good strength for wintering.

2. He says that my method does not separate the bees and sections so but that the bees can get at the sections at all times.

Well, I want the bees to have access to the honey in the sections at all times. A thin board, mortised as he describes, may be of some advantage where the autumns are colder than they are here, but the burlap is all right for this locality. I do not see that setting the sections promiscuously on that board has any advantage over my method of arranging them. When sorting my honey in the fall I place the unfinished sections back in the super on the section-holders with wedged follower, and all separators removed. The sections with no sealed honey are speedily cleaned out, and then these are removed, leaving the others far enough apart for easy manipulation. Whether a firmer chisel is better than the uncapping knife, each one must decide for himself. I prefer a clean, smooth cut to any mangling performance. I smiled, not quite audibly, when Mr. Baldwin cited as evidence of the superiority of his method, the fact that he has 400 or 500 sections ready for use next spring. I have more than 1000 sections ready for use next season; in fact, about 50 or 60 twenty-four section supers full.

I have no quarrel with Mr. Baldwin about his method of getting his half-filled sections

cleaned out, but write simply to show that my method is practical.

Summing up the matter under discussion, this is about the size of the difference between Mr. Baldwin's method and my own: He would use a thin board, with a small hole in one end of it, between the brood-chamber and super, in order to prevent a too-free circulation of air through the brood-chamber. This, I believe, to be unnecessary with colonies of reasonable strength. If not of reasonable strength, I would make them so.

I use a piece of burlap because it allows the heat of the cluster to ascend into the super, and work can go on there at all times, except when the temperature is so low as to compel the bees to cluster on the brood-combs. With a tight-fitting cover on the super there is no circulation of air that will do a fair-sized colony any harm.

My aim is to have the work done as early in the fall as possible. EDWIN BEVINS.

Decatur Co., Iowa, Feb. 27.

Season of 1902—Big Queens, Etc.

Last season was the most honeyless I have known in 55 years of bee-keeping. Rain, rain was the order of the day the whole season. The result was no surplus to speak of, and colonies light in winter stores.

I am not going to say we expect a big crop in 1903, for I have learned by experience that a few big thunder-storms can knock the poetry out of the brightest prospects of a honey crop in double quick.

While writing for the "Old Reliable," I want to propose three cheers for Dr. Gallup and Baron Lieawful. Oh, now, Mr. Editor, I feel so kind of good and happy over the discovery of great minds. Just think of it, the Doctor has discovered a law in the bee-world that like the laws of the Medes and Persians changeth not, and that law is, the larger the hive the larger the queen reared therein; the larger the queen the larger the colony; the larger the colony the larger the crop of honey! Now, let us all strike in on that line and see how soon we can get a queen as large as a yearling heifer! What boots it though we have to build hives like our barn, 30x40 feet.

And then think of the Baron's wonderful discovery, wrought out with such scientific research and mathematical exactness as to seconds of time, and the astonishing results achieved. "O! brethren, the world do move." Let the Doctor give us the big queen, and the Baron the great longevity and fertility, and some other man start a blacksmith shop to keep the queens shod and to splice their antennæ occasionally, and we can set up for bee-keeping!

Some of the older bee-keepers may remember I spoke a few years ago, through the American Bee Journal, of starting in haste for London, England, to secure one of those wonderful queens that were called "Punic bees." I am glad I didn't go. We've got something better.

In conclusion, allow me to say to any queen-breeder who wishes to try the "umbilical cord," I will mail 20 or 30 free of charge by enclosing stamp to pay postage.

W. J. DAVIS, 1st.

Warren Co., Pa., March 5.

Cloth Over Frames—Giving Bees a Flight.

Last season was a very poor one for bees in this locality. It was so wet and cold up to July 15, and then we had some fair honey weather. We got 25 or 30 pounds of surplus honey per colony, and the bees gathered plenty to winter on in the cellar. My bees are wintering finely so far; the thermometer has been down to zero for the past week, 4 degrees was the coldest here.

The coming season ought to be good for bees here, as the white clover made good growth the past season.

I notice some of the bee-keepers advocate the use of cloth over the top of frames; they are probably all right in a dry season. In such a wet season as we had here I do not think they amount to much. I had them on my colonies until the wet weather came, when I pulled them off and put on a ¼-inch board cover. The cloth was so wet and damp I could wring water out of it. The bees left the supers entirely and went below where it was dryer, and staid until I put on the boards. How did it work? Fine. I looked the next morning and they were right back in the supers working for me. Probably my neighbors' hives are made so they can not use a board on top. My hives are made so there is ½ inch between the hive and the gable of the cover. The cover sets over the top of the hive and ½ inch down on all sides. This cover, with ½-inch board instead of cloth, makes an air-spaced double cover. They can not glue the board to the sections as they do cloth. The ⅜-inch space underneath keeps the sections neat and clean.

Some say that boards crack and disturb the bees; they don't bother me much that way. I loosen them up carefully with a pocket-knife, blow a little smoke under, and the bees don't bother at all. I find a good plan in handling bees is to smoke your hands with the smoker until they smell quite strong with smoke; if a bee alights on your hands it will not stay long. I never use gloves. I have gone through the season without being stung once upon the hands.

On page 99, I notice what is said about giving bees a flight and returning them to the cellar. I tried that last spring with good success. After the bees returned to the cellar they were quiet, and did not come out of the hive at all. I am waiting for a day to put them out this spring, but we have not had a day when the bees could fly since last November. MANFRED REYNOLDS.

Kalamazoo Co., Mich., Feb. 24.

Foul Brood in Ontario.

A perusal of Mr. Wm. McEvoy's racy and strongly worded article, on page 197, inclines me to offer a word relating to it—just a point or so, and never mind the rest.

He says "the province of Ontario had at one time more foul-broody apiaries than any other Province or State in the world." One can hardly think that Mr. McEvoy had well considered that wide statement before making it. I have always been led to believe that Ontario, Canada, would not suffer by comparison with other countries generally, with regard to healthfulness of all useful animal life. My experience with keeping bees, on my own account, extends over more than 30 years, and during that time I have visited quite a number of apiaries all about me for "several miles," and I do not remember that I ever had the pleasure (?) of seeing one case of foul brood. That Ontario like other countries is subject to the disease no one wishes to deny.

Continuing, he says: "The first season that I went out on my rounds through the Province, I found the disease in every village, town and city that I went into, and also every country place where bees are kept." To make this statement clear, it should be explained that Mr. McEvoy works by the day, and if he were guided by the law that was placed in his hands for his guidance in his official duties as foul brood inspector, he visited, in the main, only apiaries or bees *to which he was sent by the President* of the Ontario Bee-Keepers' Association, and of course the President would send him only to those places where he had reason to believe foul brood existed; and then we might reasonably expect him to find it wherever he went. With the facts before us, it does seem to me that the Inspector is not justified in branding Ontario as ever having been the worst in the world in that respect.

We have reason to believe that certain parties, once prominent in bee-circles, bee-societies and bee-literature, were not as careful as they should have been when selling and shipping bees; and probably a good deal of mischief was done in that way; but did not cover all Ontario.

Can there be any valid reason for hiding the existence of any infectious disease among any of our domestic animals? To my mind, there never yet has been anything offered that had the appearance of a reason. When A. I. Root Co. had foul brood, they told us so, and we believed them, and when it was eradicated we believed what they said about it, and their busi-

ness went right on. If my bees ever have foul brood I want every bee-keeper to know it; the public is interested in all infectious diseases; it has to take its chances of suffering from such diseases; it has to stand the cost of stamping them out, and certainly it has the right to be in possession of all available knowledge touching such diseases in the country. Let's have light.

That Mr. McEvoy worked out—discovered—the best remedy for that dread disease known in this country—that he is probably the best man among us to undertake the work practically alone, very likely no one will deny.

Ontario, Canada. S. T. PETTIT.

Making "Good" Candy, Etc.

The answer to "Ontario," on page 138, in regard to making "Good" candy can be very much improved, to-wit:

Take raw extracted honey and stir into it as much finely powered cane-sugar as you may find convenient; and then on a sheet of tin, zinc, or something similar—not porous—work in some sugar of the same kind, kneading the mass as you would bread, and when you can't knead very readily any more sugar into the "dough," take a hammer and pound in more. Beat in more sugar very much like we old pioneers used to beat the clay to make the jambs of a fireplace, when we could get no bricks. It is advisable to use *only cane-sugar*. I have never been able to make a good article from the other sugars, and it should be free from ultramarine, and as fine as flour. Confectioners' sugar is fine enough, but it is *no good* at all for *good* "Good" candy.

Made as above directed this candy will keep indefinitely, even in our dry Colorado climate.

The past season I used candy thus made that was 7 *years old*. It had been kept in a tin can, with a cover tight enough to keep out red ants.

Candy made by the recipe given on page 138, *may* do very well for shipping queens a short distance—and the shorter the better—but it is not only convenient, but quite necessary, to have better candy for long distances.

When I have been unable to get sugar free from ultramarine and other impurities, it has been my practice to boil, adding a very little water, and skim off the scum that will arise from the boiling, then stir while cooling as long as I can—the longer the better; after cooling it should be solid—break it up and run through a common coffee-mill, and more than once, until it is as fine as flour. If the honey you used is warm, and the weather warm, and you do the work in a warm room, you will do better work and save time, but do not boil it.

J. E. Chambers (pages 142-3) has evidently thoroughly tested Carniolan bees, and talks straight to the point. I have handled them 10 years. They are all right, either North or South, it appears. JAMES H. WING.

Prowers Co., Colo., March 5.

An Experience with Bees.

About 2 years ago I became very much interested in bees, but last season in our section (and I think it was the same in most States) was enough to discourage almost any one who keeps bees, as the season was so wet that the bees could work only about 2 days in a week, and then the days of bad weather would come and they would eat what they had gathered during the pleasant days; and when fall came I found many of them nearly destitute of stores; but I fed them sugar syrup whenever a pleasant day came, but snow came before I could feed them enough to carry them through the winter, and so I put them into the cellar as they were—36 in number—about Nov. 15, and as I live in a very snowy country we have to leave our bees in until about April 15, making about 5 months that they are confined to the cellar, without having a flight. We have over 4 feet of snow here on a level now; it generally stays until about April 1, at which time the weather warms up, and the snow will usually all be gone about April 15, and then the bees increase very rapidly when placed out.

I have taken the American Bee Journal about 2 years, and would hardly know how to get along without it, as I find something very practical in every issue, especially the questions that Dr. Miller answers.

I will give a little experience that I had with a red clover queen that I received last summer. I expected the queen about July 1, but it was August 1 when I received her, and as I had never introduced a queen I took 6 frames filled with brood and some honey, and placed them in an empty hive, brushing every bee off (they were hybrid bees), and closed the new hive; and the next morning there were several bees hatched out of the brood and then I placed the new queen in the hive. I think she was the smallest queen I ever saw, not being any larger than my bees, but she being yellow could easily be distinguished, as my bees are nearly black, and so I watched the hive very closely. In about 30 days the bees that came from the hive were about ⅓ of them the same color as the queen, and by fall there was not one of my bees left in the hive, and it was completely filled with what I now suppose to be red clover bees, but they had very little honey.

I usually look at my bees once a week, to see how they are getting along. Last week when I went to the cellar and opened the above hive I found the colony had died (?) for want of food, which made me feel very badly. I took out some of the frames and shook the dead bees off on the floor in search of the queen, and soon found her dead as the rest. I brought her up to show her to my wife, laying the queen on a small piece of paper on the back of the stove, and in about 10 minutes I looked at her again and she was crawling around, to my surprise. I then went down and brought up the hive and bees, and put it on the back of the stove, where it was real warm, and, to my surprise, the bees all came to life. I at once made some sugar candy for them, and they are doing finely now, queen and all. F. E. CASTLE.

Oneida Co., N. Y., Feb 23.

Curing Foul Brood in Texas.

I noticed an article on pages 796 and 797, entitled, "Bee-Keeping in the Southwest—Cleome and Foul Brood." As no one else seems to do so I will try to help our friend out. As for Cleome, I don't know that I can do him any good; it is a good honey-plant, but I do not think it of value as chicken-feed.

As for foul brood making its appearance in Texas last year, our friend is mistaken; it was here when I began bee-keeping 9 years ago, and when I began to learn something about bees, I found out that my bees were in bad shape with the disease, and I set to work for a cure. I consulted my "A B C of Bee-Culture," and there found a plan and tried it, but in some cases it failed. About this time I got a copy of Dr. Howards' foul brood pamphlet (which our friend should get), and tried the McEvoy treatment, and got out of trouble. Since that time (which was about 4 years ago) my bees have been healthy, and in fine shape.

I have also done considerable work treating foul brood for my neighbors, and the plan I struck was to treat all colonies that are strong enough to take care of themselves, and such as are not, some day after they have quit flying stop the entrance, and be sure they are all

in: slip the cover just far enough from one corner to pour a teaspoonful of bisulphide of carbon. Close the cover, and that colony is "cured" to a certainty. But you must take the contents of the hive and burn or bury, and you must do this when no bees are flying. If you have spilled no honey about, the hive is safe to use again.

It is not so much trouble to cure a colony of foul brood, but to keep from spreading the disease is what you must look out for. If you have a lot of weakened colonies with this disease, never undertake to move the hives close together to strenghten so you can cure them. Just as surely you will spread the disease. It is better to treat all diseased colonies at nearly the same time as possible.

Now, Mr. Garrett, I have given you a plan by which you can cure your bees of foul brood, but you must do your work carefully, and during a flow of honey, and my advice to you is to let the other fellow treat said disease with medicine. I have found that bees do not need much medicine in Texas.

Now if you get what you want out of this, I will try again, if you ask. LON ROSSON.

Ellis Co., Texas, March 7.

CONVENTION NOTICE.

Missouri.—Bee-keepers of Missouri will meet in convention at Moberly, in the Commercial Club Rooms, at 2 o'clock p.m., on April 22, 1903, to organize a Missouri State Bee-Keepers' Association. We expect to complete our organization on that day and have some bee-talks the day following. Everybody is invited who is interested in bees and honey. Let us have a good turn-out and a good time. Good hotel accommodations can be had at $1.00 and $2.00 a day. The Monitor Printing Company will tell you where the Commercial Club rooms are located. W. T. CARY, Acting Secretary.

Wakenda, Mo.

HONEY AND BEESWAX
MARKET QUOTATIONS.

CHICAGO, March 24.—The trade is of small volume with little change in prices of any of the grades. Choice white comb sells at 15@16c with amber and other off grades slow at 2@5c less. Extracted, 7@8c for white, according to kind and flavor; dark grades, 5½@6½c. Beeswax, 30c. R. A. BURNETT & Co.

ALBANY, N. Y., Mar. 14. — Honey demand quiet; receipts and stock light. Comb selling, light, 15c; mixed, 14@15c; dark, 13@14c. Extracted, dark, at 7@7½c. Beeswax firm, 30@32c. H. R. WRIGHT.

KANSAS CITY, Apr. 2.—Our market is almost bare of comb honey; the demand is good. We quote you as follows: Fancy white comb, 24 sections, $3.50; No. 1, white, $3.40; No. 2, white and amber, $3@3.25. Extracted, white, 6½c; amber, 5½@6c. Beeswax No. 1, per pound, 25c C. C. CLEMONS & Co.

CINCINNATI, March 11—The demand for extracted honey is good at the following prices: Amber, barrels, 5½@6½c, according to quality; white clover, 8@9c. Fancy comb honey, 15½@16½c. Beeswax strong at 30c. THE FRED W. MUTH Co.

NEW YORK, March 5.—There is a fair demand for white comb at 15c per pound for fancy, 13@14c for No. 1, and 12c for amber, with sufficient supply to meet the demand. Dark honey will be cleaned up with very little left; it is selling at about 11c per pound. Extracted rather weak and in quantity lots, prices generally shaded. We quote: White, 7@7½ cents; amber, 6½@7c; dark, 6c. Beeswax scarce at 30@31c for good average. HILDRETH & SEGELKEN.

CINCINNATI, Mar. 7.—The comb honey market has weakened a little more; is freely offered at following prices: Fancy white, 14@15c; no demand for ambers whatever. The market for extracted has not been changed and prices are as follows: Amber in barrels, 5¼@5½c; in cans 6@6½c; white clover, 8@8½c. Beeswax, 28@30c. C. H. W. WEBER.

SAN FRANCISCO, Mar. 11.—White comb honey, 12½@13½c; amber, 9@11c; dark, 7@7½c. Extracted, white, 6¼@7¼c; light amber, 5½@6c; amber, 5@5¼c; dark, 4@4½c. Beeswax, good to choice, light 27@29c; dark, 25@26c.

Demand is fair on local account for water-white, uncandied, but there is not much of this sort obtainable. Market for same is firm at ruling rates. Candied stock and common qualities are going at somewhat irregular and rather easy figures, holders as a rule being desirous of effecting an early clean-up.

Special Notices.

Beeswax Market.

We are paying, till further notice, 30 cents cash, or 32 in trade, for average; one cent extra for choice yellow wax.

Three Carloads of Honey-Jars.

We have orders with two factories for 3 carloads of honey-jars to be delivered soon. One car of No. 25 jars and Mason jars goes to our branch in Mechanic Falls, Maine, while another car is coming here. The third car is of square jars also—Tip-top jars. We are getting in position to take care of orders for honey-jars promptly, and at the best available price.

Shipping at this Date.

The orders continue to roll in in good volume, so that we are still 15 cars behind on orders for car-loads. Smaller orders are shipped with reasonable promptness within 2 or 3 days after being received. The railroads continue to annoy by delay to shipments in transit. The consequence of such delays in bee-keepers' supplies are not quite so serious now as they will be later on; and it is of the highest importance that you anticipate your wants as far in advance as possible, so as not to be without the goods when the time comes that you are ready to use them. Two percent off for cash with order this month.

Second-hand Foundation-Mills.

We still have on hand a good assortment of second-hand foundation-mills, which we list as follows. Any one desiring samples from these mills, or further particulars, we shall be pleased to supply on application.

No. 014, 2x6, hex. cell, extra-thin super. Price, $8
No. 037, 2x6, hex. cell, extra-thin super, good. Price, 10.
No. 2132, 2x6, hex. cell, thin super. Price, $10.
No. 2227, 2x6, hex. cell, thin super. Price, $10.
No. 050, 2½x12, round cell, medium. Price, $12.
No. 044, 2x10, Pelham, nearly new. Price, $6.
No. 034, 2½x12½, round cell, very old style, in fair condition. Price, $10.
No. 051, 2x10, round cell, medium brood. Price, $10

The New Super Springs for 1903.

We have up until lately been using wire springs to produce the necessary compression in comb-honey supers. These were secured to the inside of the super side. There came to be a general demand for a REMOVABLE spring, and we accordingly constructed some samples made of wire; but owing to the difficulties of manufacture, and the further fact that the tension of the wire varied considerably, we finally decided on flat steel springs. This spring is very similar to if not identical with the super-spring first used by Capt. J. E. Hetherington, of Cherry Valley, N. Y., some 30 years ago, and which, we understand, he has been using ever since. While this form of spring is a little more expensive for the material used, it is easier to make. The Root Co. is now turning out these springs by the thousand. All the 1903 supers put out by us from this date on will have these springs; and we anticipate they will be well received by the general bee-keeping public. Capt. Hetherington, who for many years enjoyed the reputation of being the most extensive bee-keeper in the world, is not apt to adopt an impracticable device; and the fact that he pronounces the principle good is pretty good evidence that the fraternity at large can safely adopt it. There are those who prefer a spring fast to the super instead of loose. By putting the spring in position, and driving a staple over one end, these may be securely fastened. A staple similar to the No. 11 double-pointed tack but a little wider is needed. We will have them soon at 20 cents per pound.

A Nail-Puller for a Quarter.

On receiving a shipment of hives or other goods, how often have you felt the need of a good nail-puller with which to open the boxes without breaking or splitting them? Such nail-pullers as were effective have been beyond the reach of most people who have a box to open only occasionally. Here is something that works on the same principle as the best nail-puller, and yet is within the reach of every one. It will be worth all it costs in opening up one shipment of hives. It is nickel-plated, weighs only 3 ounces, and may be carried in the vest-pocket, yet it is strong enough to draw nails up to 2 inches. The jaws are bedded over the head of the nail; then with the hammer attached, the nail is easily drawn. The head may pull off from some cement-coated nails, and then, of course, you can not get a hold on them. Usually the grip is such as to hold the nail under the head, so it is not likely to come off. Price, only 25 cents each; by mail, 30 cents. A heavier size is made that will take 2½-inch nails. Price, 35 cents; by mail, 40.

Address, **THE A. I. ROOT CO., Medina, Ohio.**